



#12 Sub.
Spec.
(NP)
m a r o h a
5/12/03

SUBSTITUTE SPECIFICATION

Keyboard, Preferably for Cashier Registers

[0001] This nonprovisional application claims priority under 35 U.S.C. § 119(a) on Patent Application No. DE 100 34 346.5 filed in Germany on July 14, 2000, which is herein incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The present invention relates to a keyboard, preferably for cashier registers.

2. Description of the Background Art

[0003] Known keyboards have a plurality of keyboard housing parts so that, when they are serviced, exchanged or refurbished the keypad, and also often the associated keyboard electronic circuitry, must be taken out of the keyboard housing in order to replace defective, or to integrate additional, auxiliary components in the keyboard or the keyboard housing.

[0004] A keyboard for computers, for example for Point-of-Sale (POS) terminals, is disclosed in Canadian patent CA 2,051,503. Therein, a keyboard housing is of a plurality of parts.

[0005] A keyboard with a magnetic-card reader and a chip-card reader is disclosed in Japanese Abstract JP-Ab-05046649 A.

[0006] Various embodiments of a compact keyboard housing are described in Japanese Abstracts JP-Ab-11031275 A, JP-Ab-11031276 A as well as JP-Ab-11031277 A.

[0007] Further keyboards can be seen in European Patent EP 0 397 095 A2 as well as in German patent document DE 31 05 973 A1.

[0008] In German patent document DE 196 39 489 A1 the function of a POS terminal is described.

[0009] A keypad, preferably for cashier registers, is disclosed in German patent document DE 196 38 206 A1.

[0010] Each of the above-mentioned keyboards has multi-part housings and accordingly does not have a sufficiently flexible structure along with a high service friendliness as is currently required in the field of data input.

SUMMARY OF THE INVENTION

[0011] It is therefore an object of the present invention to provide a keyboard that is structured so as to be fabrication and service-friendly.

[0012] According to principles of this invention, a keyboard housing is made of one piece of material, with the housing being formed of an upper housing shell and an S-shaped lower housing shell joined with the upper housing shell. In addition, the housing is preferably made of resinous plastic. A keypad and, for example, keyboard electronic circuitry are contained in the upper housing shell and additional components in the lower shell. The keypad is preferably supported at points. In this

regard, the keypad lies on sleeves in the upper housing shell in which, preferably, two screws engage for positioning and attaching the keypad in the upper housing shell.

[0013] The keyboard electronic circuitry is, for example, below the keypad and is also supported at points, with plug couplings of the keyboard electronic circuitry extending into the lower housing shell.

[0014] The additional electrical components, such as, for example, an electronic circuit of a magnetic-card reader and/or a chip-card reader, a joystick, are coupled with the keyboard electronic circuitry.

[0015] The lower housing shell has a screw-on cover for covering it. On a backside of the lower housing shell, that is directed toward the top, a slot-shaped guide for the magnetic-card reader is integrated into the housing for having a magnetic card pulled therethrough.

[0016] Preferably, additionally or alternatively, a slot-like receiver opening for receiving a chip card can also be provided in this area.

[0017] An advantage of this solution is that additional components can be plugged, attached and/or exchanged without changing the keypad or the keyboard electronic circuitry. Also, a better renovation or retrofit with further modules or components is assured. Because of this design, the structure of the keyboard is extremely compact, modular and service-friendly.

[0018] A further advantage lies in the point-like, preferably slanted, supports of the keypad and the key electronic circuitry. Penetrating moisture is trapped in the upper housing shell and can flow out through

slots in the upper housing shell without reaching the keypad or the keyboard electronics.

[0019] Further scope of applicability of the present invention will become apparent from the detailed description given hereinafter. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the spirit and scope of the invention will become apparent to those skilled in the art from this detailed description.

BRIEF DESCRIPTION OF THE DRAWINGS

[0020] The present invention will become more fully understood from the detailed description given hereinbelow and the accompanying drawings which are given by way of illustration only, and thus, are not limitative of the present invention, and wherein:

[0021] Fig. 1 is a perspective top view of a keyboard housing;

[0022] Fig. 2 is a perspective view of the underside of the keyboard housing; and

[0023] Fig. 3 is a cross sectional view of the keyboard housing taken on Line I-I in Fig. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0024] Fig. 1 shows a perspective view of a keyboard housing 1 of a keyboard 20, for example a data cashier register for a Point-of-Sale (POS) terminal, from a top view. The keyboard housing 1 is formed as a one-piece base body, defining an upper housing shell 2 joined with an S-

shaped lower housing shell, which is not recognizable in this drawing. The upper housing shell 2 preferably has three sleeves 4 with which a keypad 5 not shown in detail here is point-supported. The keypad 5 is positioned on the sleeves 4 by screws that are not shown in detail here and are attached in the upper housing shell 2. Preferably, for a stable mechanical supporting of the keypad 5, inclined members 6 are joined on the sleeves 4, on which the keypad 5 lies at an incline.

[0025] Further sleeves 7 receive keyboard electronic circuitry 8 that is mounted below the keypad 5. Also here a mechanical support is provided by inclined members 9 that are matched with the keyboard electronic circuitry 8.

[0026] A lower side 2.1 of the upper housing shell 2 is structured to be planar at an imaginary support surface for the keyboard housing 1.

[0027] The upper housing shell 2 is joined with a backside 3.1 of the lower housing shell 3. In the lower housing shell 3, preferably in the middle, there is a rising 3.2 that, as seen from the lower housing shell 3, is actually a depression. The rising 3.2 defines a slot-shaped guide 10 of a magnetic-card reader 11 and/or a perpendicular slot-shaped opening 12 of a chip-card reader 13.

[0028] Function displays 14 of the keyboard 20 are preferably mounted adjacent the rising 3.2.

[0029] The structure of the lower housing shell 3 is shown in perspective in Fig. 2. The lower housing shell 3 can preferably be subdivided into three areas and has in the middle thereof the depression, which can be seen from below. Auxiliary electrical components 19 can be

mechanically attached in each area, for example, for the magnetic-card reader or the chip-card reader, with electronic coupling taking place via plug couplings 15 that extend from the upper housing shell 2 into the lower housing shell 3. The lower housing shell 3 is closed by a cover 16, as is shown in Fig. 3.

[0030] That the keyboard housing 1 of the keyboard 20 is made as one piece of material is shown in the cross-sectional view of Fig. 3. In particular, the inclined support of the keypad 5, shown here in dashed lines, can be clearly seen. The keyboard electronic circuitry 8 is positioned below the keypad 5 with its couplings 15 extending into the lower housing shell 3. LED's 17 extend from the keyboard electronic circuitry 8 into the area of the function displays 14. There are additional slots 18 in the front edge of the upper housing shell 2. Entering moisture can again exit from the upper housing shell 2 through these.

[0031] The keyboard housing 1 is preferably a resinous plastic injection-molded piece. The cover 16, preferably, is of metal or of the same material and is screwed onto the keyboard housing 1.

[0032] It should be understood that modifications are possible within the scope of this invention. For example, the lower housing shell 3 can join the upper housing shell 2 at the side so that the slot-shaped guide 10 of the magnetic-card reader 11 and/or the insert opening 12 of the chip-card reader 13 can be at the side of the keypad 5.

What is claimed is: